REMARKS

Entry of the above-amendment is respectfully requested. The above application corresponds to an application originally written in German and filed as an international PCT application. The above amendment is made relative to the English translation previously filed and includes amendment made previously. The amendment revises the application as translated into English to be in a format more closely corresponding to that customarily employed in U.S. patent practice. The term "ignition sequence" was amended to –operating sequence— to correct the translation. The term "firing order" is also used in this regard for glass container forming - see, e.g., EP 0603010 B1, column 1, lines 11- 14 (copy enclosed herewith).

If there are any questions, please contact the undersigned attorney for applicant.

Respectfully submitted,

Date: August 26, 2008

/gah/
Gary A. Hecht, Reg. No.: 36,826
Attorney for Applicant

SYNNESTVEDT & LECHNER LLP
1101 MARKET STREET
26TH FLOOR
PHILADELPHIA PA 19107-2950
Telephone: (215) 923-4466
Facsimile: (215) 923-2189

P:\S drive - Clients\S\SOBISCH & CALLIES\Patents\P31249 USA\PTO\SupplementalAmendment.doc

(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) EP 0 603 010 B1

(12) EUROPEAN PATENT SPECIFICATION

(45) Date of publication and mention of the grant of the patent:
09.09.1998 Bulletin 1998/37

(51) Int. Cl.[6]: **C03B 7/10**, C03B 9/41, C03B 7/16

(21) Application number: **93310265.9**

(22) Date of filing: **17.12.1993**

(54) Machine for forming glass containers

Maschine zum Herstellen von Glascontainern

Machine pour la fabrication de récipients en verre

(84) Designated Contracting States:
DE FR GB IT

(30) Priority: **18.12.1992 US 992590**

(43) Date of publication of application:
22.06.1994 Bulletin 1994/25

(73) Proprietor:
Emhart Glass Machinery Investments Inc.
Wilmington, Delaware 19801 (US)

(72) Inventors:
- **Peterson, George T.**
  Bristol, Connecticut 06010 (US)
- **Liska, Timothy J.**
  West Simsbury, Connecticut 06092 (US)
- **McDevitt, John W.**
  Vernon, Connecticut 06066 (US)

(74) Representative:
Randall, John Walter et al
Emhart Patents Department
Emhart International Ltd.
177 Walsall Road
Birmingham B42 1BP (GB)

(56) References cited:
EP-A- 0 100 239
US-A- 4 459 146

Printed by Xerox (UK) Business Services
2.18.3/3.4

EP 0 603 010 B1

Description

The present invention relates to machines for forming glass containers from gobs of molten glass. One such machine, which is referred to as an I.S. (individual section) machine, has a plurality of individual sections each of which has a blank mold for receiving a gob or gobs and for forming them into parisons and a blow mold to which the parisons are transferred to be formed into containers.

A feeder working in conjunction with a shear mechanism defines discrete gobs of molten glass which are delivered in a given sequence or firing order to the blank mold of the sections by a gob distributor. In state of the art systems made by the assignee of this application each section of the machine has a controller including a repetitive sequencer for controlling the actions required by that section and the machine comprises a machine controller, which also has a repetitive sequencer for controlling the actions of mechanisms not dedicated to a specific section (the gob distributor, for example). Such a gob distributor could be mechanically (cam) operated or it could be operated by a profiled motion actuator (a servo, for example).

In both cases a once per cycle gob distributor signal is generated when the gob distributor returns to its start position where it will be ready to deliver gobs to the first section in the firing order. In both cases once per cut feeder signals are distributed to each section and to the machine controller. Each section controller will define the sync signal as the feeder once per cut signal that is immediately before the once per cycle gob distributor signal and each repetitive sequencer will then know its start position. When the gob distributor is cam operated the machine controller knows the desired phase difference between these two signals (the phase set point - 10°, for example) and can advance or retard the gob distributor motor to rotate the cam to establish the desired set point. This correction, accordingly, fine tuned the already established phase difference between the gob distributor signal and the immediate prior feeder signal.

In a mechanical gob distributor the gob distributor will always be located at the first firing position when the once per cycle gob distributor pulse is signalled. When, however, a servo gob distributor is used this is not always the case and it is necessary to coordinate the gob distributor to the firing order which is defined by the sync signal. This has traditionally been done by allowing the servo gob distributor to see the firing order of the sections and then conform its sequence to the firing order of the sections. This has in practice been achieved by supplying the servo gob distributor with the section signals which control whether the gob distributor interceptor is to be in the advanced position to prevent gobs from being directed to a section or in the retracted position to allow gobs to the section. The only time a section interceptor signal will be on is when it is the turn of that section in the firing order and discrete wires from the sections to the servo gob distributor accordingly informed the servo gob distributor of the firing order.

In summary therefore, each controller (sections and machine) received once per cycle and once per cut signals and individually defined the sync signal for their controller. Additionally for servo gob distributors, the firing order of the sections had to be communicated from the sections to the servo gob distributor which had to be able to receive and conform to this information.

US-A-4 641 269 discloses an I.S. machine comprising a feeder including means for cutting gobs of molten glass from a runner of molten glass, a plurality of independent individual sections for receiving gobs of molten glass and for forming the gobs into glass containers, each of said sections comprising a local computer or controller which performs in timed relation to synchronisation signals, a gob distributor displaceable to deliver gobs to said sections and a local computer or controller for the gob distributor which performs in timed relation to the synchronisation signals. The synchronisation signals are provided to all the local computers from a timing pulse generator which generates a pulse each section cycle.

It is an object of the present invention to provide an improved system for synchronizing the section and machine controller and the gob distributor.

The invention generally comprises an I.S. machine comprising

a feeder including means for cutting gobs of molten glass from a runner of molten glass,
a plurality of independent individual sections for receiving gobs of molten glass and for forming the gobs into glass containers, each of said sections including a controller having a repetitive sequencer that performs in timed relation to synchronization signals,
a gob distributor displaceable to deliver gobs to said sections,
a gob distributor controller having a repetitive sequencer that performs in timed relation to synchronization signals, characterized by
means for synchronizing said section controllers and said gob distributor controller so that said section and gob distributor controllers will operate in timed relation to the same synchronization signals including
means for generating a once per cut signal, a divide by N circuit where N is the number of said sections which are to have gobs distributed to them,
means for defining N,
means for applying said defined N to said divide by N circuit,
means for supplying said once per cut signal to said divide by N circuit whereby an output synchronization signal will be output each defined Nth once per cut signal, and